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# Tiger shrimp pens in Thailand

Aquaculture Department, Southeast Asian Fisheries Development Center

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# Tiger shrimp pens in Thailand

## Site selection

Protected bays, coves, and inland sea are ideal for pen culture. Suitable sites for pen culture of the tiger shrimp *Penaeus monodon* have these characteristics:

- Protected from strong winds, waves and current
- Free from domestic, industrial and agricultural wastes and other environmental hazards
- Water depth of 1 meter at the lowest tide during the full and new moon periods
- Clay soil
- Bottom slope of less than 15°
- Adequate water circulation
- These water characteristics:

	Range
pH	7.5 - 8.3
Dissolved oxygen	4-8 mg/l
Salinity	10 - 32 ppt
Temperature	26 - 32°C
Ammonia-nitrogen	< 0.02 mg/l
Current	< 1 m/sec
Hydrogen sulphide (in soil)	none

## Pen construction

A cubical pen is the most convenient design. It is made of synthetic net framed by wood or bamboo. Stout poles are placed at the corners. The size is 6 x 6 x 5-6 meters with a 1.4 mm net mesh. A larger mesh, 5 mm, is used for shrimps after one month. As fouling organisms, crabs, or flotsam can damage nets, a two-layer net may be used to prevent the stock from escaping.

## Rearing

The stocking density of 5-cm fry is 4000 per pen. Fry are given feeds with ground "trash fish" or squid at 10-20% of body weight per day.

Feed is given 4-5 times a day at 0700, 1200, 1600, and 2200 H. The feed is placed on feeding trays, six trays in each pen. The trays consist of wooden frames (0.5 x 0.5 meter) with nylon nets, are weighed down with stones but suspended 30 cm above the bottom. The feeding trays are checked for leftovers and the amount of feed is adjusted according to consumption.

Growth and survival are checked by sampling with a cast net. Sampling is done every week in the first month of culture, and bimonthly after that. Water quality is checked regularly.

The pen is checked biweekly for damage and the nets cleaned and changed. Spare nets should always be available.

## Harvest

Harvest early in the morning. Use cast nets so that the shrimp can be transported live to the restaurant or market. Production usually reaches 100 kg per pen after 3-4 months of grow-out. Survival is 75% for shrimps of size 30/kg.

## Return on investment

The cost of pen and frames is about Baht 8000; the fry and feed per crop, B 6000; and the total cost per crop, B 8500.

The production per crop is 100 kg per pen, and the sales B 15 000. Thus, the fish farmer can profit B 6500 per crop or B 13 000 per pen per crop (1 Baht roughly 1 Philippine peso; 1 US\$ = P28).

Pen culture of the black tiger shrimp could indeed be profitable for fish farmers throughout Southeast Asia.

Source: S Tookwinas. *Pen culture techniques of marine shrimp in Thailand*. INFOFISH International 2/90.